

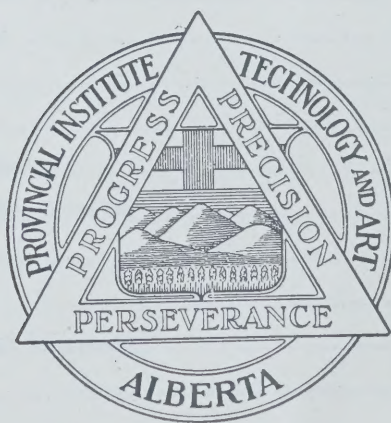
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Provincial Institute
of
Technology
□□ and Art □□

CALGARY ————— ALBERTA

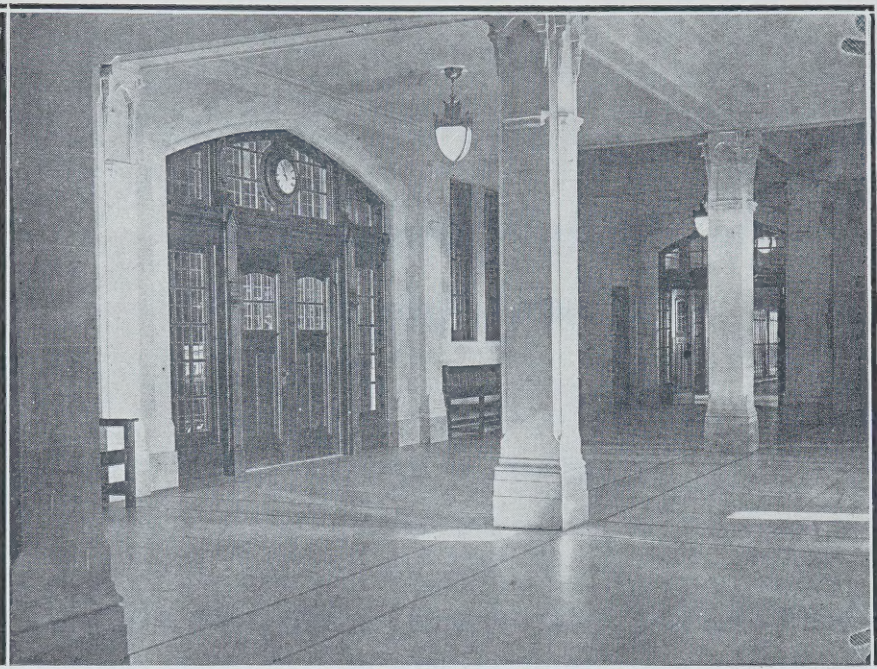


SIXTH ANNUAL ANNOUNCEMENT

1925 — 1926

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 Main
 Hallway
 and
 Front Door
 of Main
 Building
 Provincial
 Institute
 Technology
 and Art.



The Provincial Institute of Technology and Art

CALGARY - ALBERTA

UNDER THE DIRECTION OF THE DEPARTMENT
OF EDUCATION

In affiliation with the University of Alberta.

HON. PERREN BAKER - *Minister of Education*

JOHN T. ROSS - - - - - *Deputy Minister*

W. G. CARPENTER - - - *Principal of the Institute and Director
of Technical Education*

JOE H. ROSS - - - - - *Vice-Principal of the Institute and
Shop Director*

MARGARET H. COLVILLE *Secretary to the Director*

The Institute Buildings

A GROUP of three buildings provides accommodation for the work of the Institute, and consists at present of:

- (a) Main Building;
- (b) Work-Shop Building;
- (c) Power Plant.

The main building is 340 feet in length and 90 feet in depth. This building consists of a central block containing the administrative offices and the assembly hall on the main floor. On the second floor are the staff common-room, and separate staff rooms and the gallery of the assembly hall. On the third floor are the library, gymnasium and locker rooms.

In the basement, under the assembly hall, is a cafeteria, a serving kitchen and a men's lounge room.

The west wing of the main building is used for the Normal School and its Practice School.

The east wing is used by the Institute, and provides on the main floor for laboratories, lecture room, and class rooms. The second floor of the east wing provides for the Household Economics and Dressmaking and Millinery Departments. On the third floor are class rooms, Drafting rooms, Art room and Telegraphy room.

This main building, which is entirely fireproof, is constructed of brick with stone facing, and is designed after the Collegiate Gothic style of Architecture. The special feature of the central block consists of two towers. The whole structure is situated on an elevated site, which affords a commanding view of the Rocky Mountains and of the City of Calgary.

The work-shop building is approximately 125 feet to the rear of the main building. This building is 317 feet long and 100 feet in width. It is one story in height, and is divided off into units providing shops for:

- Mechanical and Steam Engineering,
- Electrical Engineering,
- Tractor Engineering,
- Gas Engine Work,
- Machine Shop Practice,

Auto Service Engineering,
Garage,
Forging,
Building Construction,
Battery and Ignition,
Vulcanizing,
Electrical Testing,
House Wiring.

Located in this building, also, are
Two lecture rooms,
Staff room, and
Tool and supply room.

The power house, 50 feet by 100 feet, and situated immediately to the rear of the work-shop building, consists of a boiler-room with provision for three 225 horse-power high-pressure water-tube boilers equipped with mechanical stokers. In this room also are the overhead coal bunkers with latest type of ash-conveying machinery. Adjoining the boiler-room on the same floor is the engine-room, equipped with various types of electrical generating machinery. In 1925 a 150 killewatt generator with complete switchboard equipment was installed. This unit will supply all the electric energy required for light and power purposes in the Institute. In the basement under the engine-room is the pumping machinery for the water supply and heating system.

The power plant is designed with a view to research work on fuels, for experimental work, and for instruction in power-plant engineering.

An underground tunnel connects the power house with the Main Building.

Calendar—1925-1926

1925

FALL TERM

Monday, October 5.—REGISTRATION DAY.

Tuesday, October 6.—CLASSES OPEN IN REGULAR COURSES.

Monday, October 26.—Registration for Evening Classes.

Monday, November 2.—Day Drafting, Tractor and Farm Construction Classes open.

Monday, November 16.—First Special Tractor Class opens.

Tuesday, December 22.—First Special Tractor Class closes.

Monday and Tuesday, December 21 and 22.—Fall Term Examinations.

Tuesday, December 22.—Institute closes for Christmas vacation.

1926

WINTER TERM

Tuesday, January 5.—Institute re-opens for all classes.

Wednesday, January 6.—Second Special Tractor Class opens.

Friday, February 12.—Second Special Tractor Class closes.

Monday, February 15.—Third Special Tractor Class opens.

Thursday and Friday, March 11 and 12.—Winter Term Examinations.

Friday, March 26.—Third Special Tractor Class closes.

SPRING TERM

Wednesday, March 31.—Regular Tractor, Drafting and Farm Construction Classes close.

Friday, April 2 to Monday April 5.—Institute closed for Easter.

Wednesday, Thursday, Friday, May 19, 20 and 21.—Final Examinations.

Friday, May 21.—Institute closes for regular classes.

Monday, May 17.—Special Day Class in Mining opens.

Friday, June 4.—Special Day Class in Mining closes.

Staff

<i>Principal</i>	-----	W. G. Carpenter, B.A.
<i>Vice-Principal and</i>		
<i>Shop Director</i>	-----	Joe H. Ross, A.M.E.I.C.
<i>Mining</i>	-----	C. C. Richards, B.Sc., M.E.I.C., M.I.M.M., R.P.E. Andrew W. Baxter
<i>Mechanical and</i>		
<i>Steam Engineering</i>		Robt. M. Dingwall, A.R.T.C., R.P.E., A.M.E.I.C. W. H. Broughton, R.P.E.
<i>Science and</i>		
<i>Mathematics</i>	-----	James Fowler, M.A., B.Sc. S. J. Davies, A.R.S.M., F.G.S. P. T. Hagen, B.A.
<i>Drafting</i>	-----	Leo E. Pearson, B.A. L. H. Bennett, M.R.A.I.C., M.R., San. I. C. C. Planche, B.Sc.
<i>Tractors</i>	-----	T. A. Hedley C. J. MacFarlane
<i>Motor Service</i>		
<i>Engineering</i>	-----	C. A. Choate A. D. Wagner
<i>Electricity</i>	-----	Robt. Gendall Geo. Collinson Guy Morton, B.Sc., R.P.E.
<i>Automotive</i>		
<i>Electricity</i>	-----	F. N. Rhodes W. P. Rhodes
<i>Station Agents and</i>		
<i>Telegraphy</i>	-----	R. L. McIlveen John Benedict
<i>Forging</i>	-----	M. McLellan
<i>Dressmaking and</i>		
<i>Millinery</i>	-----	Mrs. Lucy Innis
<i>Machine Shop</i>	-----	G. F. S. Gilbert
<i>Secretary</i>	-----	Dorothy A. Humphrey
<i>Correspondence</i>		
<i>Division</i>		
<i>Stenographer</i>	-----	E. Louise Davidson
<i>Storekeeper and</i>		
<i>Tool Clerk</i>	-----	David Holmes
<i>Laboratory</i>		
<i>Assistant</i>	-----	J. B. Oughton

CONDITIONS OF ADMISSION TO REGULAR COURSES

Applications will be received from anyone over 15 years of age who desires a course, and every effort will be made to adapt the work to the capacities of the students. In some courses the students must have qualifications approved by the Staff in order that real progress may be made, and an examination in Arithmetic and English may be given to these students.

In case the number of applications exceeds the accommodation facilities of any shop, the right is reserved to select those applicants for any course who appear to have qualifications that are essential for success in such a course.

Applications for admission should be made as early as possible before the opening of the course. Students taking regular courses will be admitted only during the first two weeks of the Course, and the first two weeks of the Winter Term. Admission may be granted by the Principal at other times if the circumstances warrant.

Students taking Correspondence Courses in Mining and Steam Engineering may enrol at any time during the year. Two years from date of enrolment is allowed each student in which to complete his correspondence course.

The Institute will issue Certificates to all students who have completed satisfactorily any unit or subject in the Institute. (Passing marks, 65 per cent.)

Diplomas will be issued to all students who have completed the regular shop courses satisfactorily and who pass the necessary written examinations in all subjects specified for those courses. (Subjects pass 60 per cent.; average 65 per cent.)

No student will be eligible to receive a certificate or diploma who has not been in attendance 90 per cent. of the time specified for the subject or course.

Courses organized at present are:

FULL DAY OR PART TIME COURSES IN

Industrial Mechanical Engineering ----- 14

(For Steam Engineers)

Industrial Electrical Engineering ----- 17

Automobile Service Engineering (Auto.

Mech.) ----- 19

Tractor Engineering ----- 23

Automotive Electricity ----- 20

Architectural Drafting ----- 24

Mechanical Drafting ----- 25

Survey Drafting ----- 26

Dressmaking and Millinery ----- 29

Railway Station Agent's Work ----- 18

Farm Construction and Mechanics ----- 20

Courses in Building Trades (Woodworking, Plumbing, Bricklaying), Industrial Art, Motion Picture Operation, Oxy-Acetylene Welding, Machine Shop Practice and Vulcanizing may be organized when the need is shown and demand warrants.

A regular day course in Mining for persons with practical mining experience may also be organized if the enrolment warrants.

EVENING COURSES (*see page 59*)

Steam Engineering.	Drafting, Mechanical.
Industrial Electricity.	Drafting, Agricultural.
Motor Mechanics.	Machine Shop Practice.
Battery & Ignition.	Armature Winding.
Automotive Electricity.	Telegraphy.
Drafting, General.	Building Construction.
Drafting, Electrical.	Chartered Accountancy.

(Other courses may be offered if there is sufficient enrolment.)

CORRESPONDENCE COURSES IN—

Mining Engineering	1st Class (Mine Manager)	56
“	“ 2nd Class (Pit Boss)	53
“	“ 3rd Class (Fire Boss)	57
Steam Engineering,	1st Class	57
“	“ 2nd Class	58
“	“ 3rd Class	58

EXPENSES AND DEPOSITS

The table below gives the expenses in connection with a course at the Institute.

The deposit of \$5.00, less deductions if any, will be returned upon completion of the course.

There are no dormitories connected with the Institute. Students may obtain board and room in the vicinity of the buildings at a reasonable rate. A list of boarding houses may be obtained from the secretary's office. Board and room \$7.00 to \$8.00 per week. The noon meal may be obtained at the Institute Cafeteria at a nominal fee.

FEES

<i>Type of Course</i>	<i>Registration and Tuition</i>	<i>Deposit</i>	<i>Laboratory or Shop</i>	<i>Text Fee Books</i>	<i>Students Association</i>
Regular Day -----	\$10.00	\$5.00	\$3.00	Approx. \$6.00	\$2.00
Short Courses (6 weeks or under) -----	5.00	5.00	1.00	6.00	1.00
Special Courses -----	5.00	5.00	1.00	note books only	1.00
Evening Classes ----- (all enrolments)	5.00	5.00 (only for shop classes)	---	---	1.00 (optional)
Correspondence—					
1st Class -----	25.00				
2nd Class -----	15.00				
3rd Class -----	10.00				

Tool deposits not claimed within 60 days after close of course may not be recoverable.

Day students may enrol in night classes with the approval of the Principal and on payment of regular fee.

INDUSTRIAL MECHANICAL ENGINEERING COURSE (For Steam Engineers)

Two Years.

There is a very wide field of opportunity for the technically trained mechanical engineer on account of the tendency today to make engineers the executive officers in industrial concerns. This is due to the fact that an engineer, by his training, is particularly well adapted to solve successfully the complex problems which modern industrial life presents.

In training, the engineer is taught to be logical. He must study practical problems from different points of view, analyzing and measuring the forces which are at work. From this analysis he must deduce the importance of each factor in a problem in relation to other factors and to the whole and finally his conclusions must be correct as they have to stand the strictest of tests, the test of practical application.

Alberta, because of her wealth in natural resources, will be industrially great, and every young man who intends to enter industrial life should prepare himself for his life's work by taking such a course.

FIRST YEAR

<i>Subject</i>	<i>Unit</i>	<i>Class Hours</i>	<i>Page</i>
Repair and Erecting Shop ----	C-10	600	30
Theory Lectures -----	C-11	120	30
Mathematics -----	U-11	180	52
Physics -----	M-11	60	45
Chemistry -----	M-12	60	45
Drafting -----	L-12	120	40
English -----	T-10	60	51
Machine Shop -----	H-11 (120 class	36	
	hours included with C-10)		
Total -----		1,200	

SECOND YEAR

Power Plant -----	C-20	360	31
Electrical Shop -----	E-12	60	33
Machine Shop -----	H-21	60	36
Theory Lectures -----	C-21	180	31
Mathematics -----	U-21	180	53
Physics (Laboratory) -----	M-21	90	46
Chemistry (Laboratory) -----	M-22	90	46
Drafting -----	L-22	120	44
English -----	T-20	60	51
Total -----		1,200	



Steam Engine and 150 K.W. Generator erected by the students in the Mechanical Engineering Group and the Senior Electrical Group during the season 1924-25. 1. Form for cement base. 2. The switchboard. 3. Engine base on cement. 4. Engine placed on its base. 5. The Mechanical Engineering Group and their completed project—a complete power plant. 6. Engine with generator attached.

INDUSTRIAL ELECTRICAL ENGINEERING COURSE

TWO YEARS

The field of Electrical Engineering is ever widening, and the opportunities for the industrious young man with ability in this field, who wills to succeed, are ever increasing. The scope is well-nigh unlimited. There is hardly an industry today that is not dependent in one way or another on electricity.

The demand for efficient, technically trained men is steadily growing and the selection of an electrical career opens up tremendous possibilities for the ambitious and able student.

This course is a heavy and serious outline which only those who mean business should attempt. Immature boys with low school grading can scarcely hope to be successful in this department.

FIRST YEAR

<i>Subject</i>	<i>Unit</i>	<i>Class Hours</i>	<i>Page</i>
Shop Work -----	E-10	600	32
Electrical Theory -----	E-11	120	32
Mathematics -----	U-10	180	52
Physics -----	M-11	60	45
Chemistry -----	M-12	60	45
Drafting -----	L-11	120	40
English -----	T-10	60	51
Total -----		1,200	

SECOND YEAR

Shop Work -----	E-20	300	33
Machine Shop -----	H-11	120	36
Electrical Theory -----	E-21	120	33
Electrical Testing -----	E-24	120	34
Mathematics -----	U-20	180	53
Physics -----	M-21	90	46
Chemistry -----	M-22	90	46
Drafting -----	L-21	120	44
English -----	T-20	60	51
Total -----		1,200	

RAILROAD STATION AGENTS' COURSE

TWO YEARS

Railroading is one of the chief industrial organizations in Canada. It offers pleasant and remunerative occupation to large numbers of men in the course of the year. The opportunity for advancement in railroading is limited by the quality of service an employee is able to render. For able young men with good character who are willing to work and are not too particular about the nature of the job at the beginning, railroad station agent and telegrapher's work is an open door to opportunity.

This course is designed to cover two years' intensive work in telegraphy and all phases of the duties of a station agent. Students have forms actually in use on the railroads. There is given in addition to this a general course in electricity with major attention to signalling, which should serve as a first class introduction to the operation and care of electric equipment as used in a railroad system.

FIRST YEAR

<i>Subject</i>	<i>Unit</i>	<i>Class Hours</i>	<i>Page</i>
Operating and Railroad Work --	N-10	540	49
Electrical Theory -----	E-11	120	32
Electrical Shop -----	E-12	60	33
Mathematics -----	U-10	180	52
Physics -----	M-11	60	45
Chemistry -----	M-12	60	45
Spelling -----	T-11	60	51
Penmanship -----	T-12	60	51
English -----	T-10	60	51
Total -----		1,200	

SECOND YEAR

Telegraph and Railroad Work--	N-20	420	49
Electrical Shop and Testing ---	E-23	180	33
Electrical Theory -----	E-22	120	33
Typewriting -----	O-21	60	50
Mathematics -----	U-20	180	53
Science -----	M-22	180	46
English -----	T-20	60	51
Total -----		1,200	

AUTOMOBILE SERVICE ENGINEERING COURSE

(Motor Mechanics)

TWO YEARS

The phase of the automobile industry with which we in Alberta are particularly concerned, is the repairing and conserving of the many motor vehicles on which we are so dependent.

The present perfection of automobiles and trucks is the result of many years endeavor on the part of a large body of engineers.

Since the automobile and truck have become such strong competitors in modern transportation, there has arisen a demand for the trained motor mechanic and competent service man. Those engaged in this work or contemplating to enter the field should study carefully motor assemblies that they may perform intelligently and skilfully the many varied repairs and adjustments that may be required.

This course is very practical and helpful.

FIRST YEAR

<i>Subject</i>	<i>Unit</i>	<i>Class Hours</i>	<i>Page</i>
Shop Work -----	G-10	600	35
Auto Engineering (Lectures) --	G-11	120	35
Drafting -----	L-13	120	40
Mathematics -----	U-12	180	52
Physics -----	M-11	60	45
Chemistry -----	M-12	60	45
English -----	T-10	60	51
Total -----		1,200	

SECOND YEAR

Shop Work -----	G-20	180	36
Machine Shop -----	H-11	120	36
Battery and Ignition Shops ----	F-10	360	34
Ignition (Lectures) -----	F-11	120	34
Drafting -----	L-23	60	44
Mathematics -----	U-22	120	53
Physics -----	M-21	90	46
Chemistry -----	M-22	90	46
English -----	T-20	60	51
Total -----		1,200	

AUTOMOTIVE ELECTRICITY COURSE

Eight Months

(Pre-requisite: First-year Automobile Engineering Course or three years' practical experience in garage.)

Due to the extensive use of electrical equipment on automobiles and many other types of internal combustion engine installations, and also owing to the numerous changes in this equipment to bring about greater simplicity and strength, there has been developed during the past few years the need for specialists in this line of work. These specialists must have qualifications to fit them to superintend the setting up and repair of such equipment, and to instruct in its use and care. It is the object of this course to train men in such a way that they are qualified to fill these positions successfully.

<i>Subject</i>	<i>Unit</i>	<i>Class Hours</i>	<i>Page</i>
Shop Work -----	F-10	360	34
Shop Work -----	G-20	180	36
Shop Work -----	H-11	120	36
Ignition (Lectures) -----	F-11	120	34
Drafting -----	L23 or 13a	60	44-40
Mathematics -----	U-22	120	53
Physics -----	M-11 or 21	90	45-46
Chemistry -----	M-12 or 22	90	45-46
English -----	T-20	60	51
Total -----		1,200	

FARM CONSTRUCTION AND MECHANICS COURSE

Five Months.

This course is designed to give young farmers a knowledge of, and experience in, the mechanical and building operations common in farm life. It involves a training in the general up-keep and repair of machinery commonly used on the farm, including the maintenance in working order of gas engines, tractors, separators and other farm equipment. Instruction and practice is given in the construction of buildings and other general mechanical work involving simple carpentry, cement and bricklaying. Forging is an important department in this course. The splendid equipment of the Institute is placed at the disposal of these classes and the course is entirely practical.

<i>Subject</i>	<i>Unit</i>	<i>Class Hours</i>	<i>Page</i>
Gas Engine and Tractor Shop -----	D-12 & 13	6 wks.	31-32
Woodworking Shop -----	K-13	6 wks.	39
Cement Work -----	K-14	1wk.	39
Bricklaying -----	K-15	1 wk.	39
Farm Machinery -----	FD-10	2 wks.	35
Forging -----	J-11	3 wks.	36
Total -----		19 wks.	



Upper—A view of the Auto Service Garage.
 Middle—Farm Mechanics studying the grain separator and gas engines.
 Lower—A busy scene in the Tractor Department.

TRACTOR ENGINEERING COURSE

Two terms of five months each

Course starts first Tuesday in November

The very large increase in the sale and use of gas engines and tractors for all classes of power usage has created a demand for trained operators and repair men who may be able to keep this type of equipment in proper condition to render efficient service.

Large quantities of machinery are put out of use each year, due to lack of care and mechanical experience. There is every indication of an abundant supply of fuel oils being produced in this province which along with the present supply of natural gas and coal, gives reasonable assurance of the opportunity ahead of those who prepare themselves to expert in this field.

FIRST TERM

<i>Subject</i>	<i>Unit</i>	<i>Class Hours</i>	<i>Page</i>
Shop Work -----	D-10	390	31
Tractor Engineering (Lectures) -----	D-13	90	32
Mathematics -----	U-12	120	52
Ignition (Lectures) -----	F-12	120	34
English -----	T-10	60	51
Total -----		780	

SECOND TERM

Shop Work -----	D-20	330	32
Shop Work -----	H-11	120	36
Shop Work -----	J-10	90	36
Drafting -----	L-13b	120	43
Physics -----	M-11	60	45
Chemistry -----	M-12	60	45
Total -----		780	

SPECIAL TRACTOR COURSE

Six Weeks

First Course: November 16 to December 22, 1925.

Second Course: January 5 to February 12, 1926.

Third Course: February 16 to March 26, 1926.

The work outlined for this course is intended to make a student familiar with all the common types of modern farm gas engines and tractors. In the limited time available, it is impossible to make expert gas engine repair men, but each man is trained to the point where he understands the operation of this type of machinery and becomes fairly proficient in locating and remedying common troubles.

Each course will be as follows:

<i>Subject</i>	<i>Unit</i>	<i>Class Hours</i>	<i>Page</i>
Shop Work -----	D-12	116	31
Tractor (Lectures) -----	D-13	58	32
Ignition (Lectures) -----	F-13	58	35
Total -----		232	

REGULAR DRAFTING COURSES

These courses extend from November to March of each year.

ARCHITECTURAL DRAFTING

THREE YEARS

This course should appeal to the progressive builder or contractor as well as to the man who wishes to prepare himself as an architectural draftsman or to pursue further work in architecture.

FIRST TERM

<i>Subject</i>	<i>Unit</i>	<i>Class Hours</i>	<i>Page</i>
General Drafting -----	L-10	200	40
Architectural Drafting -----	L-15	140	43
Shop Work -----	K-11	80	36
Physics -----	M-11	60	45
Chemistry -----	M-12	60	45
Building Construction -----	K-12	80	39
Mathematics -----	U-14	120	52
English -----	T-10	60	51
Total -----		800	

SECOND TERM

Architectural Drafting -----	L-25	350	44
Shop Work -----	K-21	80	39
Building Construction -----	K-22	40	39
Physics -----	M-21	90	46
Mathematics -----	U-24	120	53
Graphic Statics -----	U-26	60	54
English -----	T-20	60	51
Total -----		800	

THIRD TERM

Architectural Drafting and Design -----	L-35	340	45
Shop Work -----	K-31	80	39
Building Construction and Estimating -----	K-32	40	40
History of Architecture -----	R-11	40	50
Mathematics -----	U-34	120	54
Shop Methods -----	A-11	60	30
Strength of Materials -----	M-31	80	49
Materials of Construction -----	M-39	40	49
Total -----		800	

MECHANICAL DRAFTING

THREE YEARS

This course deals primarily with machine drawing and design and will be found very helpful to anyone specializing in a mechanical trade or industry, as well as to the man who intends to become a mechanical draftsman, designer or master mechanic.

FIRST TERM

<i>Subject</i>	<i>Unit</i>	<i>Class Hours</i>	<i>Page</i>
General Drafting -----	L-10	200	40
Machine Drafting -----	L-16	100	43
Shop Work -----	H-11	80	36
Steam Engineering (Theory) --	C-11	120	30
Mathematics -----	U-14	120	52
Physics -----	M-11	60	45
Chemistry -----	M-12	60	45
English -----	T-10	60	51
Total -----		800	

SECOND TERM

Machine Drafting -----	L-26	290	44
Shop Work -----	H-21	60	36
Lectures -----	C-21	120	31
Mathematics -----	U-24	120	53
Physics -----	M-21	90	46
Graphic Statics -----	U-26	60	54
English -----	T-20	60	51
Total -----		800	

THIRD TERM

Machine Drawing -----	L-36	380	45
Shop Work (Erecting) -----	C-12	60	31
Shop Methods -----	A-11	60	30
Elements of Machine Design --	H-31	60	36
Mathematics -----	U-34	120	54
Strength of Materials -----	M-31	80	49
Materials of Construction -----	M-35	40	49
Total -----		800	

SURVEY DRAFTING

Three Years.

This course is designed to train men, who are interested in engineering survey work, for positions in the field or in an office and this course should prove attractive to the student who has had some experience with a survey party and intends following up that line of work.

FIRST TERM

<i>Subject</i>	<i>Unit</i>	<i>Class Hours</i>	<i>Page</i>
General Drafting -----	L-10	200	40
Survey Drafting -----	L-17	100	43
Field Work -----	L-18	120	43
Surveying -----	L-19	80	43
Mathematics -----	U-14	120	52
Physics -----	M-11	60	45
Chemistry -----	M-12	60	45
English -----	T-10	60	51
Total -----		800	

SECOND TERM

Survey Drafting -----	L-27	240	43
Field Work -----	L-28	60	44
Surveying -----	L-29	80	44
Shop -----	H-11	90	36
Mathematics -----	U-24	120	53
Physics -----	M-21	90	46
Graphic Statics -----	U-26	60	54
English -----	T-20	60	51
Total -----		800	

THIRD TERM

Survey Drafting -----	L-37	280	43
Field Work -----	L-38	80	45
Hydraulics -----	M-33	80	49
Mathematics -----	U-34	120	54
Strength of Materials -----	M-31	80	49
Elements of Machine Design -----	H-31	60	36
Shop Methods -----	A-11	60	30
Materials of Construction -----	M-39	40	49
Total -----		800	



Costumes, gowns, hats and artificial flowers made in the Dressmaking and Millinery Department of the Provincial Institute of Technology and Art.

INDUSTRIAL DRESSMAKING AND MILLINERY

TWO YEARS

The up-to-date dressmaker or milliner requires to be more than an expert needlewoman. She must have a trained sense of artistic values, a knowledge of color and design, an acquaintance with all the materials of her trade and a considerable amount of business acumen.

The object of this course is to train young women to become dressmakers and milliners. Those taking this course should be competent, capable sales-ladies, who should be able to give sound advice regarding the compositions and wearing values of various textile materials. They should command good positions in the larger stores of our cities, and be qualified to take charge of the ladies' department of a general store in any of the towns throughout the province. This training, coupled with trade experience, should qualify them to become capable buyers.

This course is introductory to many splendid opportunities that may open to young ladies.

FIRST YEAR

<i>Subject</i>	<i>Unit</i>	<i>Class Hours</i>	<i>Page</i>
Shop Work -----	P-11	600	50
Textiles and Materials -----	P-12	120	50
Color and Design -----	R-19	120	51
Mathematics -----	U-15	120	53
Physics -----	M-13	60	45
Chemistry -----	M-14	60	46
English -----	T-10	120	51
Total -----		1,200	

SECOND YEAR

Shop Work -----	P-21	600	50
Textiles and Materials -----	P-22	60	50
Costume and Hat Design -----	R-29	120	51
Economics of Buying and Selling -----	A-21	60	30
Drawing -----	R-27	90	51
Bookkeeping -----	O-11	120	50
Chemistry -----	M-24	90	46
English -----	T-20	60	51
Total -----		1,200	

DAY CLASSES

A-11

SHOP METHODS

60 Class Hours

A study of various methods of manufacturing. Comparisons are made of machine and tool costs, quality of labor, waste of material, speed of production, required skill of labor, space and power requirements for machine and other departments.

ECONOMICS OF BUYING AND SELLING

A-21

60 Class Hours

Approximate cost of standard materials. Calculation of freight, duty, overhead charges, etc. Economical buying. Importance of turnover. Value of clearance sales. Methods of advertising.

C-10

SHOP WORK

600 Class Hours

Repair and Erecting Shop.—Names of tools used in mechanical engineering construction and repair. Forging, tempering, sharpening and use of small hand and machine tools. General boiler repairs, including caulking, tube expanding and beading. General engine repairs, including dismantling, lining up, refitting, babbeting, valve setting and running tests, pipe fitting. Erecting pipe lines for conveying high and low-pressure steam and water to ensure proper drainage and expansion. Connecting up motors and transformers. Erecting a complete power plant.

Boiler Room.—Modern power plant boiler-room operation, including coal, ash and water tending, lighting fires, raising steam, banking fires, putting boilers into and out of service, cleaning and inspecting boilers. Elementary work in combustion control and boiler efficiency.

Engine Room.—Care, maintenance and operation of medium and high-speed engines, turbines, refrigerating and air compressor units. Practice in operating D.C. and A.C. generators and motors and elementary switchboard control.

C-11

THEORY (Lectures)

120 Class Hours

Course of lectures on—Boilers; Boiler Room Auxiliaries; Reciprocating Engines; Steam Turbines; Condensers; Air Compressors; Refrigerating Machinery; Electrical Machinery; Power Plant Instruments; Engine Room Auxiliaries

Lectures include the study of the general arrangement of steam power plants with a detailed description of the action, construction, erection, operation, maintenance and suitability of each unit and its auxiliaries for various conditions of service.

Elementary mathematical and graphical calculations of the strength of parts.

C-12**ERECTING SHOP****60 Class Hours**

Names and uses of tools used in mechanical engineering construction and repair. General boiler work, including caulking, tube expanding and beading. General engine work, including dismantling, lining-up, refitting, babbiting, conveying high and low pressure steam, air and water to ensure proper drainage and expansion. Erecting a small power plant.

C-20**POWER PLANT****360 Class Hours**

In this course more advanced work in power plant operation will be undertaken and will include control of operations in boiler and engine rooms.

Compiling and analyzing log sheets and charts to determine plant efficiency under operating conditions.

During the session efficiency and consumption tests will be carried out on individual and combined power plant units.

C-21**THEORY (Lectures)****180 Class Hours**

This course is a continuation of the study of Power Plant Machinery as dealt with in the first year, more attention being given to the C.I.S. regulations as they apply to power plant construction and operation.

Principles of heat and its application to the economical operation of steam boilers, steam engines, air compressors and refrigerating machinery.

Methods of conducting and analyzing results of efficiency tests. More advanced study of the theory, construction and operation of A.C. and D.C. electrical machinery.

D-10**TRACTOR SHOP WORK****390 Class Hours**

Names and use of tools, parts, etc.

Taking down, cleaning, assembling and timing simple gas engines.

Gas engine repair. Fitting pistons and piston rings. Grinding valves, adjusting tappets. Pouring and fitting babbitt bearings. Care of roller and ball bearings. Pipe fitting. Assembling and adjusting mixers and carburetors. Care and adjustment of magnetos and ignition apparatus. Repair of lubricators and oiling devices. Clutch adjustment. Cleaning and overhauling transmission. Soldering, brazing and welding.

D-12**SHOP WORK****6 Weeks****(With Lectures D-13)**

Exercises in practical work, with up-to-date machines. Practice in starting and operating various types of gas engines and tractors. Grinding and reseating valves, fitting pistons and rings, valve and ignition timing. Pouring and fitting bearings,

overhauling, repair and adjustment of various gas engines, tractors and grain separators. Operation of semi-diesel type engine and lighting plants. Pipe fitting, soldering and brazing. Plow adjustment and repair. Magneto construction and repair.

TRACTOR AND OTHER FARM MACHINERY DEPARTMENT
D-13 (Lectures) 6 Weeks

Types of gas engines, names of parts of the engine or tractor. Carburetors. Fuels and carburetion. Valve and ignition timing. Firing order of cylinders. Fitting bearings, pistons and piston rings. Grinding and reseating valves. Cooling, lubricating and ignition systems. Tractor clutches, transmission and steering apparatus.

Plowing, plow care and hitches. Care and operation of grain separators, farm lighting plants—gas and electric—pumps, windmills and other machinery. Tractor care and operation. Indicated, brake, and draw bar horse power.

Metallurgy of iron and steel. Soldering, brazing, and welding. Annealing, hardening and tempering of tool steel. Case hardening. Pipes and pipe fitting. Taps and dies. Types of bolts and threads used on farm machinery.

D-20 TRACTOR SHOP 330 Class Hours

More advanced work covered by course D-10. Timing and adjusting engines; making brake tests; taking indicator cards; analyzing exhaust gases. Care and operation of farm lighting plants, grain separators and other power farm machinery.

E-10 ELECTRICAL SHOP 600 Class Hours

Care and use of tools; jointed, solid and stranded wires and cables; soldering and taping joints; connecting simple and complex bell circuits; wiring and finishing; taking down and re-assembling D.C. motors and generators; connecting up and running D.C. motors and generators; use of instruments in measuring D.C. loads; testing for and locating faults in D.C. motors and generators; locating faulty coils in D.C. armatures; winding D.C. armatures; care of storage batteries. Practical application of the various means of rectifying alternating current for charging storage batteries. Inspection and assembling of A.C. motors, single and polyphase; connecting induction motors with starting compensators. Paralleling D.C. and A.C. generators; making transformer connections; testing transformers.

ELECTRICAL THEORY LECTURES

E-11 120 Hours

Static electricity; magnetism; electromagnetism; electromagnetic induction; applications; electrical units—volt, ampere, ohm, watt, kilowatt, kilowatt hour, joule.

D.C. motors, operation characteristics. Efficiency of motors and generators. D.C. measuring instruments—voltmeter, ammeter, wattmeter; use of wheatstone bridge. Primary and storage cells, regulations and control of direct current systems; national electric code and local by-laws re house wiring and installation of electrical equipment; introduction to alternators; transformers, A.C. motors.

Simple wiring for light and power.
Location and correction of faults in generators and motors.

Locating and repairing faults in A.C. machines. Winding various types of A.C. machines. Practice in the use of A.C. measuring instruments. Carrying out efficiency tests of the various types of A.C. and D.C. machines. Line work for light, power and telephone systems. Power plant operation.

Industrial applications of electrical energy. Power plant installation and operation. Switchboard instruments. Systems of distribution. Connecting of motors, generators, transformers, etc., transmission lines. Theory of alternators—synchronous converters; synchronous motors; commutator and induction type motors.

Simple telegraph and telephone connections. Multiple telegraph and telephone connections. Capacity, impedance, reactance, resonance and their relation to "signal" circuits. Connections of motors, generators, transformers, etc. Theory of alternators, synchronous converters, rectifiers. High voltage and high frequency phenomena. Elements of wireless telegraphy and telephony. "Morcom" and "Multiplex" systems. Atmospheric disturbances.

Voltage, current and power measurements in D.C. circuits. Measurement of resistance by various methods. Testing of in-

sulation. Location of faults. Loop testing. Voltage, current and power testing in A.C. circuits; inductive and non-inductive. Testing and locating grounds in telegraph and telephone systems.

(b) Practical work:

Practice in connecting up telephone and telegraph instruments into a variety of circuits. Making of temporary and permanent joints. Wiring up of telephone, telegraph and wireless switchboards. Sufficient practice in winding to enable students to make a temporary repair.

ELECTRICAL TESTING (Laboratory Work)

E-24

120 Class Hours

Voltage, current and power measurements in D.C. circuits. Characteristics of shunt, series and compound generators and motors. Measurement of resistance. Location of faults. Testing of insulation. Voltage, current and power relations in A.C. circuits, inductive and non-inductive. Measurement of poly-phase power. Characteristics of induction motors, synchronous motors, alternators and synchronous converters. Testing efficiency of generators, motors and transformers.

F-10

SHOP WORK

480 Class Hours

The repair and manufacture of lead batteries, charging by various means using rectifiers and motor generators, discharging, testing involving the use of modern instruments.

Re-wiring of cars, locating electric troubles and the repair of the various units; installation of farm lighting plants; wiring of farm buildings; making of instruments and electric appliances used in garage work.

LECTURES ON AUTOMOTIVE ELECTRICITY

F-11

120 Class Hours

Introduction, including history of electricity and the electron theory of matter. Magnetism. Induction coils and transformers; statics and condensers; coils, generators, magnetos and motors. Ignition, high and low tension, galvanic electricity, primary cell and storage batteries. Care and building of batteries, their charging and methods of producing current for the purpose. Electric lighting and wiring. Study of individual car wiring systems, testing and repairs.

IGNITION LECTURES (Tractor Class)

F-12

120 Class Hours

Principles of electricity and magnetism. Induction, electrostatics, galvanics, resistance, reactance and capacity. Magnetos, generators, motors, ignition; high and low tension. Timing. Special low tension and magnetos. High tension and magnetos. Oscillators and impulse starters. Primary batteries, wet and

dry cells. Storage batteries and their maintenance. Farm lighting plants, installation, upkeep and repair. Farm house wiring; farm telephones.

F-13

IGNITION LECTURES

44 Class Hours

(Short Courses)

Introduction of subject, explanation and history of electricity, electrical terms. Magnetism, permanent magnets, electromagnets, parallel and series connections, Ohm's law, conductors, resistances and insulators, induction, induction coils, magneto principles. Galvanic electricity, primary batteries. Ignition. Timing, advance spark, firing order. Low-tension ignition. Oscillating magnetos. High-tension battery ignition, high-tension magnetos. Fordson electric system. Storage batteries, farm lighting plants.

FD-10

FARM MACHINERY

2 Weeks

Mechanism, construction and use of the various implements used on the farm; their care, adjustment, and repair—grain separators, windmills, pumps, binders, mowers, rakes, seeders, barrows, etc. Eveners; various combinations of hitches for most effective use of horse or other power.

G-10

GARAGE SHOP WORK

600 Class Hours

Regular service station garage work on popular makes of cars. Rebuilding used cars, including fitting pistons, piston rings, bearings, etc. Use of various kinds of tools, including micrometers. "Burning in" and "Running in" of bearings. Valve timing, grinding, clearance. Ignition timing.

Care and adjustment of clutches, transmissions, front and rear axles and steering mechanisms. Wheels and tires. Repairs and adjustment of various types of fuel supply. Lubrication and cooling systems.

AUTOMOBILE ENGINEERING LECTURES

G-11

120 Class Hours

Classification of motor vehicles, consideration of various types. Historical development. The gasoline automobile: general construction, consideration of unit assemblies, duty and designation, materials used.

Power plant, internal combustion system of operation, cycles, consideration of parts, their adjustment, clearance allowance, cylinder head and valve arrangement. Arrangement of cylinder and crankshaft of multi-cylinder engines. Valves, valve operating mechanism; timing, oiling systems,—arrangement, adjustment, failure and repair; fuel supply systems,—gravity, vacuum and pressure.

Diagnosing and correcting troubles. Observation of various methods. Opportunity will be given students to specialize in some particular branch of study.

H-11

MACHINE SHOP

80 Class Hours

Use and care of precision measuring instruments. Grinding and setting of machine cutting tools for different materials. Speeds. Machine sawing, drilling and tapping. Shaping plane surfaces. Lathe work. Parallel and taper turning and boring. External and internal screw cutting.

H-21

MACHINE SHOP

60 Class Hours

More advanced work on lathe, shaper and milling machine.

ELEMENTS OF MACHINE DESIGN

H-3160 Class Hours

A course of lectures planned to acquaint the student with the properties and principles of the strength of materials as applied to the design of parts of machines; fastenings used in machine construction; bolts, screws, keys, cotters, rivets and riveted joints, journals and bearings. Included in this course are problems to make the student efficient in the application of theory to the quick and correct design of machines.

J-10

FORGE SHOP WORK

90 Class Hours

How to make a blacksmith's fire; how to make the necessary tools; various heats, annealing, tempering; drawing out of metal; welding; plowshare sharpening, followed by a series of exercises in link and clevis making; simple ironing work; harrow teeth sharpening.

J-11

FORGING

3 Weeks

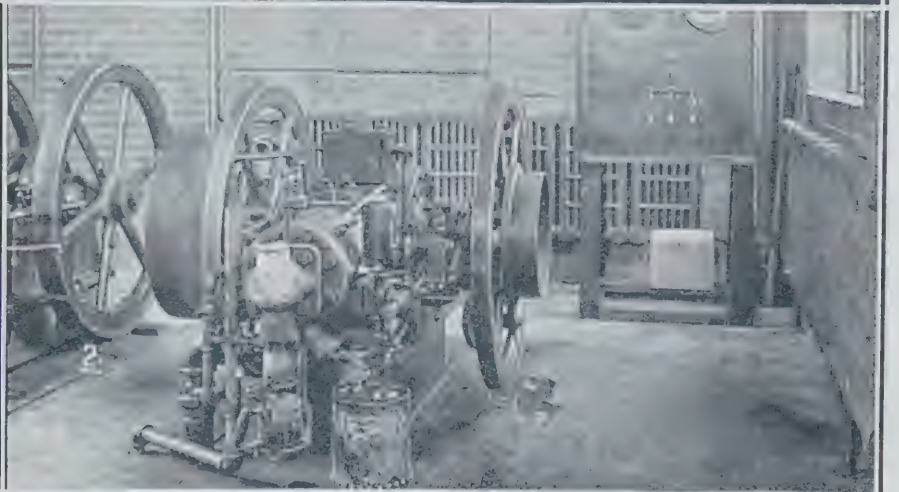
How to erect a forge and make a blacksmith's fire; drawing out metal; making hooks, blacksmith's tools, etc.; welding; use of fluxes; various heats and effects on different stocks; tempering; exercises in chain link and clevis making; simple iron work,—brackets, braces, sharpening plow-shares, harrow teeth, etc.; demonstrations of what can be done with oxy-acetylene in welding.

K-11

WOODWORKING SHOP

80 Class Hours

Practice in handling and care of bench tools and experience in joining and shaping woods of various textures; making several forms in mortice and tenon, dovetail, mitre, splice, butt, and other typical joints; making pieces of equipment and models for use in shop and draughting room; taking sizes and making dimensioned sketches,



1. The Forge Shop. 2. A Fairbanks-Morse 10 h.p. Semi-Diesel Oil Engine connected with generator and switchboard. 3. A section of the Woodworking Shop for Farm Construction.

K-12 BUILDING CONSTRUCTION 80 Class Hours

Sketches and description of the essential structural features of a building in their common forms and details of exterior and interior finish; notes on the source, characteristics and uses of the common building materials; house planning; plumbing, heating and electric wiring for small dwellings; building by-laws.

K-13 WOODWORKING 6 Weeks

The use of woodworking tools and their care. Plans for and construction of hayracks, wagonboxes, whiffle-trees, neck-yokes, wagon tongues, sleighs, wheel barrows, water-troughs, feedracks, chickenhouses, pig styes, stable, house and barn construction. Models. Particular attention paid to laying out of rafters, rooftrusses, etc. Blue prints and specifications; reading of blue prints for farm buildings, estimating quantities, bills of material; choice of woods, fence building. Lectures.

K-14 CEMENT WORK 1 Week

Construction of concrete forms for pouring cement; foundation making, cement floors, sidewalks, well casing; blocks, cement troughs. Testing cement, gravel and sand; proper portions of each to use for different types of construction, uses of cement on farm.

K-15 BRICKLAYING 1 Week

Types of brick for various services; mortars and their preparation; the laying of a brick floor; construction of a chimney.

K-21 WOODWORKING SHOP 80 Class Hours

Practical carpentry, full size or to large scale; details of house construction—framing, roofing, finishing; centres, shoring and other temporary work; roof trusses and other examples of heavy construction; use of steel square; setting out "rods" for work.

K-22 BUILDING CONSTRUCTION 40 Class Hours

Study of fire-resisting construction and materials, including mill-construction, reinforced concrete, and structural steel. General sanitation applied to building—site, lighting, heating, ventilation, water supply, and disposal of waste. Study of specifications and methods of estimating quantities and cost.

K-31 WOODWORKING SHOP 80 Class Hours

Joinery and cabinetwork; making pieces of furniture or interior fittings for houses; wood-carving and wood-turning; methods of wood finishing; use of woodworking machinery.

Design of piers, columns, beams, girders, floors, and roof trusses. Consideration of important points in inspection of materials and construction. Writing specifications, taking off quantities, and getting out estimates.

A general elementary course in drafting. The aim is to give an understanding of several types of drawing and related problems as well as practice in using instruments.

The work will include freehand lettering and the use of special lettering pens, the making of freehand working sketches from object and perspective sketches from working drawings; geometric drawing; orthographic projection, including auxiliary views; inclined orthographic projection; development of surfaces and simple sheet metal drafting; intersection of solids and the development of intersecting surfaces; conic sections; isometric drawing and cabinet projection; principles of mechanical perspective; plan and elevation of a small building, bolts and screws, rivets; simple structural drafting; machine parts, including section and symbols for different materials; topographical drawing; tinting and line shading; tracing and blue printing.

Freehand sketching; drawings, geometric, projection and isometric; development of surfaces. Simple machine drawing. Wiring symbols and the drawing and tracing of simple wiring diagrams.

Freehand sketching from machine parts. Geometric drawing and projection drawing. The drawing of standard bolts, screws, rivets and pipe fittings. Standard values and details of boiler and engine parts. All drawings conform to Canadian Interprovincial Regulations.

Shop sketching and elementary principles of mechanical drawing sufficient to enable students to read blue prints and diagrams sent out by gas engine and automobile manufacturers. Geometric drawing and the drawing of bolts, screws and simple machine parts. Wiring diagrams for gas engines and automobiles.

Freehand sketching and principles of projection drawing. Electric symbols and simple diagrams. Wiring diagrams showing lighting and ignition systems on typical automobiles.

*An optional course with L-23 for Battery and Ignition students who have not had L-13.



1. A class in Mechanical Drafting. 2. Pole and line work of the Industrial Electrical Class. 3. A corner of the Radio Studio showing transmitter.

Shop sketching including tractor details and diagrams. Principles of mechanical drawing and working drawings of simple machine parts. Standard and special bolts and screws.

L-15ARCHITECTURAL DRAFTING 140 Class Hours

Symbols and conventions used on house plans as for walls, beams, stairs, chimneys, lights, plumbing and heating. Drawing of typical interior detail, types of doors and windows, joints used in construction, brick bonds, mouldings, etc. The work includes plans, elevations and perspective drawing of a modern house or bungalow.

L-16MECHANICAL DRAFTING 100 Class Hours

Elementary machine drawing including typical machine details, fastenings, keys, shaft couplings, stuffing boxes; bearings, pulleys, pistons, connecting rods and cranks. Assembly drawings from details, and details from assembly, also sketches and working drawings from machine parts. Perspective drawing of a machine or details.

SURVEY DRAFTING

L-17, 27, 37Total of 620 Class Hours in Course

Symbols used in topographical drawing, plotting from notes, contour work, profile making, mapping, drawing complete plans and details of various types of undertakings such as irrigation system, stream diversion, railroad spur, etc.

L-18

FIELD WORK

120 Class Hours

Practical work in connection with the use of instruments; care in handling instruments and tapes; to set up instruments; focus; parallax.

The transit; reading horizontal angles; the vernier; methods of surveying; keeping the notes; horizontal and slope measurements; vertical angles; testing the adjustments; survey over level ground; over broken ground.

The level: use of instrument; levels over surveyed line; over surveyed area; keeping notes; testing adjustments.

L-19

SURVEYING

80 Class Hours

Lectures on instruments used and methods employed in conducting surveys; methods of keeping notes, calculating and tabulating results. Application of mathematics to surveying; reduction of slope measurements; various methods of surveying; of keeping notes; of plotting results. Construction, care of and use of instruments used in surveying; focus and parallax; testing the adjustments. Co-ordinate systems; calculation and tabulation of latitude and departures; areas. Railroad curves—simple problems; levelling; profiles, contours; notes.

This work consists largely of individual problems related to electric shop work, as the drawing of details of electrical machinery and diagrams for motor connections for electrical installation and for light, power and bells. Distribution and transmission plans for a town.

Elementary machine drawing including boiler and engine details. Assembly drawing from related groups of detail drawings or sketches. Simple electrical wiring diagrams. Arrangements of different types of power plants. All work to conform to the C.I.S. regulations.

Sections and sketches showing principles or action of automobile mechanism, as of carburetor, motor, etc. Bearings, gears and cams. Plan of a shop showing arrangement of equipment. Design and detail, some shop equipment, tools, or labor-saving devices.

To include the making of drawings for a small business block, bank, theatre, church or apartment house, including brick or stone work.

LL

Perspective drawing of interiors and exteriors of buildings. Sketches of different types of buildings and architectural ornament. Details of stereo relief and plaster ornaments, bay and dormer windows, china cabinets, book cases, stairs, fireplaces, leaded glass, etc.

Drawing of engine details with a consideration of most suitable proportions. Pistons, piston rods, cross heads, connecting rods, cams, cranks and eccentrics, spur and bevel gears. Special problems with attention to machine construction. Use of color washes.

Adjustment of instruments; surveying of details; trigonometric levelling; stadia survey; plane table survey; railroad survey—simple problems; running levels; triangulations; location of meridian.

Field notes; office records; methods of surveying; stadia surveys; railroad surveys; plane table surveys; triangulation; trigonometric, barometric and precise levelling; lay out of Dominion lands; preparation for levellers examination for D.L.S.; stream measurements; determination of meridian.

L-35 ARCHITECTURAL DRAWING 340 Class Hours

Simple problems in architectural design. Perspective drawing rendered in wash and in pen and ink. Details of building construction. Plan a building for a definite purpose and location, make specifications and figure out amount and cost of materials necessary for its construction. Details of wooden trusses and structural steel drawing. Details of architectural ornament.

L-36 MACHINE DRAFTING 380 Class Hours

Application of principles of machine drawing to the solution of practical problems in machine construction. Assembly and detail drawing of machines, electrical and mechanical equipment.

L-38 FIELD WORK 120 Class Hours

Railroad surveys; earthwork; plane table; triangulations; trigonometric levelling; precise levelling; barometric levelling; stream measurements; hydrostatic surveying.

M-11 PHYSICS 60 Class Hours

Measurement of length, area, volume, weight. Use of vernier and micrometer. Density and specific gravity. Machines; lever, pulleys, inclined plane, screw, etc. Pulley and gear ratios. Force, energy, work, power. Pressure in liquids; buoyancy; hydrometers. Pressure in gases; barometers; Boyle's law. Heat. Effect on solids, liquids and gases. Units of heat measurement; degrees, calories, B.T.U. Latent heat; specific heat. Conduction; convection; radiation. Charles' law.

M-12 CHEMISTRY 60 Class Hours

Physical and chemical change. Study of common elements and their compounds. Oxygen, oxides, air. Hydrogen, water. Acids, bases, salts. Electrolysis. Carbon, carbon-dioxide, carbon monoxide, carbonates. Nitrogen, nitric acid, ammonia. Chlorine. Sulphur, sulphuric acid.

Brief studies in the following topics: Fuels and combustion. Feed water and boiler scale. Burning oils and lubricants. Storage batteries. Metallurgy of iron, steel, copper, aluminum. Solders and fluxes.

M-13 PHYSICS 60 Class Hours

Properties of Matter: Solids, liquids, gases. Measurement of length, area, volume weight, density and specific gravity. Laws of pressure in liquids and gases. Aneroid and mercury barometers.

Heat: Effects on solids, liquids and gases. Construction of thermometers. Practical applications of expansion and contraction. Transmission of heat by conduction, convection and radiation.

Light: Reflection and refraction, lenses and prisms; colour, complementary colours, the spectrum. Illumination as applied to rooms, store windows and show cases.

Electricity: Static; precautions concerning use of electric iron, fuses, plugs, sockets, proper insulation, etc. Casts.

M-14

CHEMISTRY

60 Class Hours

Elements and compounds. Physical and chemical changes. The atmosphere, oxygen, nitrogen, carbon dioxide, ventilation. Water, its chemical composition, natural waters, impurities and their removal, hard and soft water.

Acids, bases and salts.

The following elements and their commoner compounds: Oxygen, hydrogen, carbon, chlorine, sulphur, nitrogen.

Elementary chemistry of dyeing and bleaching, soap and laundry compounds, removal of stains on fabrics, etc.

Tests for identifying and estimating different fibres in textures.

M-21

PHYSICS (Laboratory Work) 90 Class Hours

Use of vernier, micrometer and balance. Determination of specific gravity of solids and liquids by various methods. Mechanical advantage of simple machines;—lever, pulley, screw, chain of gears, etc. Testing strength of materials. Boyle's law. Heat. Construction and graduation of thermometer. Determination of co-efficient of expansion of solids and liquids. Latent heat of ice and steam. Specific heat of common metals. Charles' Law. Light, reflection and refraction. Lenses. Colour. Illumination. Candle power of lamps. Use of photometer and foot candle meter. Problems on illumination of class rooms, workshops, public buildings, storerooms, etc.

CHEMISTRY (Lecture and Laboratory)

M-22

90 Class Hours

Manipulation of chemical equipment. Preparation and examination of common gases. Acids, bases, salts, detection of common radicals. Use of chemical balance. Simple gravimetric work. Chemical theory and calculations. Technical analyses of fuels, flue gases, water, boiler scale, lubricating and burning oils.

M-24

CHEMISTRY (Laboratory)

90 Class Hours

Manipulation of chemical equipment. Use of burette, pipette and chemical balance. Preparation, properties and uses of the common gases; oxygen, hydrogen, nitrogen, carbon dioxide, chlorine, ammonia, sulphur dioxide. Acids and alkalies, neutralization.

Action of acids and alkalies on textile fabrics. Distinguishing tests for different fibres. Qualitative and quantitative analysis of mixed fabrics. Detection and estimation of weighting in silk.



1. Testing oil in the Chemical Laboratory. 2. In the Storage Battery and Ignition Shop. 3. Tire rebuilding as a part of the Automobile Service Engineering Course.

Laundry Notes.—Hardness of water and its removal; action of household acids and alkalies on textiles; bluing; testing dyes for fastness to light, washing and friction; stains and their removal.

Principles of dyeing, practical dyeing of wool, silk and cotton materials.

STRENGTH OF MATERIALS (Laboratory)

M-31 80 Class Hours

Testing of concrete, timber, steel and other materials used in construction, etc.

M-33 80 Class Hours

HYDRAULICS (Lectures)

Fundamental principles and applications of same to problems on the discharge from orifices, notches and weirs; flow in pipes and in open channels, such as ditches and flumes; drainage areas and storage.

M-39 40 Class Hours

MATERIALS OF CONSTRUCTION

Manufacture and properties of iron and steel, principal alloys; considerations governing selections of materials; manufacture and properties of cements; study of concrete; stone and brick masonry; principal kinds of commercial timber.

TELEGRAPH AND RAILROAD WORK

N-10 540 Class Hours

Handling Freight Traffic.—Freight classification, tariffs, rate construction; packing, checking, addressing and receiving freight; Bills of lading, way bills; loading, handling in transit, tracing, delivering. Claims, claim prevention; storage; diversions; reconsigning; icing; handling various types of freight such as perishables, explosives, livestock, etc.

Transportation.—Train rules, to Rule 104 A & B, Question 101, C Examination Book.

Train Orders.—Forms, use, handling.

Telegraphy.—Alphabet and speed of 12 words per minute; acceptance of telegrams, checking; tariffs and tolls; transmission, receiving; delivery; filing; reports; money transfers; special services.

TELEGRAPH AND RAILROAD WORK

N-20 420 Hours Work

Passenger Traffic.—Tariffs; ticket selling; soliciting business; baggage; sleeping car; ticket accounting.

Transportation, car reports; records; distribution; demurrage; service rules; per diem charges; switching.

Express Business.—Receiving, packing, checking, receipting; billing; handling; freight traffic, money traffic, special; loading; protecting, delivery, money orders, C.O.D.'s; reports.

Accounting—Cash book, expense bills; way bills; freight registers; abstracts; corrections; claims; debits and credits; O. C. S. material with charges to collect; demurrage and storage collections; balance sheet; reports and statistics.

Telegraphing—Sending and receiving at railroad rates.

COMMERCIAL ARITHMETIC AND BOOKKEEPING

O-11 120 Class Hours

Accounts and business forms; trade discount; profit and loss; commission; exchange; insurance; banking; Practice in starting and keeping a set of books.

O-21 60 Class Hours

TYPEWRITING

Typewriting, mechanism and care of machine; ribbon mechanism; spacing and proper margins, carbon work; touch system; speed 15 words per minute.

P-11 600 Class Hours

SHOP WORK

Dressmaking—Practice in various methods of sewing different materials; machine sewing; cutting and making various garments, simple at the beginning but progressing to more difficult ones and better materials.

Millinery—Practice in stitches used in millinery; pattern drafting for adults' hats; trimming and lining regular shapes.

P-12 and 22 120 Class Hours

TEXTILES (Lecture Course)

The aim of these courses is to give the students such knowledge of fabrics and textiles that they may intelligently select materials that are suited to the purpose to which they are to be applied. The various ordinary textiles and materials such as cotton, silk, wool, etc., are dealt with historically and industrially, the processes of manufacture, dyeing and preparation for market being dealt with.

P-21 600 Class Hours

SHOP WORK

Dressmaking—A continuation of course P-11 with broader training in selecting, designing, constructing and fitting garments for different types of figures; organization of work from a trade standpoint; emphasis on speed.

Millinery—Modelling irregular shapes and covering with silk, velvet, etc., making bows, rosettes and silk flowers; the drafting and making of regular and irregular wire shapes and covering with straw, silk, etc. Advanced trimming with braid, tulle, chiffon, lace, etc.

R-11 40 Class Hours

HISTORY OF ARCHITECTURE

A comparative study of styles of architecture and historic ornament; Egyptian, Greek, Roman, Romanesque, Byzantine, Gothic and Renaissance. The influence of these styles on modern architecture.

R-19 COLOUR AND DESIGN 120 Class Hours

An elementary study of the principles of design and colour harmony. This work includes practical problems in connection with colour schemes for clothing and for interior decoration, and design for handicraft and needle work. Simple styles of letters are studied and practice given in spacing letters on cards and the use of lettering pens.

R-27 DRAWING 90 Class Hours

A study of the principles of perspective and the proportions of the human figure. The aim of this subject is to give practice in sketching from object, drapery, figure and pattern, and to enable the student to express her ideas quickly and accurately.

R-29 COSTUME AND HAT DESIGN 120 Class Hours

Brief study of the development of historical costumes. Study of line, proportion, balance, colour and texture in relation to the design of the costumes for different types. Attention will be given to the alteration of a design and choice of colours to suit different individuals.

T-10 ENGLISH 60 Class Hours

Oral and written composition applied to business needs so that the intended meaning may be conveyed in clear, concise and correct language. Narration of incidents, description of objects, explanation of operations, and statement of facts or opinions; writing of letters, telegrams, and advertisements; preparation and delivery of short public speeches; correct pronunciation and clear articulation; correction of grammatical errors and faulty expressions; spelling; derivation, and use of technical terms; legible writing; neat and logical arrangement of notes; use of dictionary and other reference books. Supplementary reading of one approved biography with written report.

T-11 SPELLING 60 Class Hours

Practice in spelling words in common use. (See programme of studies for Public Schools). Exact use of words; dictation; common prefixes and suffixes; abbreviations.

T-12 PENMANSHIP 60 Class Hours

Letter formation; practice exercises. Large, legible and free hand will be required. All written work will be practice in penmanship.

T-20 ENGLISH 60 Class Hours

A continuation of the work outlined under T-10 with emphasis on planning expression to suit particular requirements. Taking notes and making summaries of lectures and printed

articles; study of the form and wording of, and practice in writing specifications, contracts, reports, and special letters; keeping of job and office records; business interviews; collection and arrangement of data bearing on a particular problem and suitable presentation of facts gathered or conclusions reached; practical acquaintance with Rules of Order for public meetings; suggested reading and helpful references. Supplementary reading of one approved biography, with written report.

U-10

MATHEMATICS

180 Class Hours

Addition, subtraction, multiplication and division of whole numbers, common and decimal fractions. Ratio and proportion. Percentage. Areas and volumes of common solids. Square root. Weights and measures. Specific gravity. Elementary algebra.

Electrical problems involving Ohm's law. Power,—generators, motors and batteries. Size and carrying capacity of wires. Simple graphs.

U-11

MATHEMATICS

180 Class Hours

Addition, subtraction, multiplication and division of whole numbers, common and decimal fractions, standard weights and measures. Ratio, proportion and percentage. Simple graphs. Mensuration of surfaces and solids. Substitution in and evaluation of formulas. Use of Logarithms.

Practical application to capacities of cylinders, pumps, tanks, boilers, etc. Strength of machine and boiler parts. Power and efficiency of power plant machinery. Strength and power of shafting and belting. Simple problems in heat and electricity.

U-12

MATHEMATICS

180 Class Hours

Addition, subtraction, multiplication and division of whole numbers, common and decimal fractions. Ratio, proportion. Percentage. Areas and volumes of common solids. Weights and measures. Specific gravity. Square root.

Problems involving capacity of tanks, drums, etc., pulley and gear ratios, clearance, horsepower, cost of time and materials. Simple graphs.

U-14

MATHEMATICS

120 Class Hours

Arithmetic.—Fundamental operations. Fractions, decimals. Ratio and proportion. Percentage. Mensuration of common surfaces and solids. Application to technical problems.

Algebra.—Notation, fractions, simple equations, transformation and evaluation of formulae, factorization.

Plane Geometry.—Theorems regarding straight lines, angles, triangles and parallelograms.

Plane Trigonometry.—Measurement of angles, trigonometrical ratios and equations.

U-15

ARITHMETIC

120 Class Hours

Mental arithmetic, rapid calculation, short methods, vulgar and decimal fractions. Averages, tables of weights and measures, profit and loss, simple interest, bank discount, taxes. Measurement of plane figures as triangle, square, rectangle and circle; calculation of measurements of rooms; estimates, etc.

U-20

MATHEMATICS

180 Class Hours

Review of previous year's work. Algebra to quadratic equations. Elementary trigonometry. Vectors, graphs, logarithms. Problems in A.C. involving lag and lead, power factor, inductance and capacity. Transmission calculations. Magnetic flux. Efficiency in transformers, etc. Three phase calculations.

U-21

MATHEMATICS

180 Class Hours

Review of previous year's work. Algebra up to quadratic equations. Transformation and evaluation of formulæ. Use of logarithms. Elementary plane geometry and trigonometry. Graphical representations—use of Simpson's rule and planimeter. Equation of a straight line. Application to boiler details and working pressure in accordance with C.I.S. regulations; the size, capacity and power of power plant machinery; the thermal efficiency of boilers, engines, air compressors and refrigeration machines. Ohm's law and electrical wiring sizes.

U-22

MATHEMATICS

120 Class Hours

Review of previous year's work.

Algebra: Notation, fundamental operations, brackets, fractions, simple and simultaneous equations, transformation and evaluation of formulæ, factorization.

Problems involving Boyles and Charles' Laws, calculation of indicated, brake and draw bar horse power, etc.

Use of logarithms.

Electrical units, Ohm's Law, simple electrical calculations involving charging of batteries, capacity of batteries, etc.

Elementary bookkeeping.

U-24

MATHEMATICS

120 Class Hours

Algebra—Simultaneous equations, quadratics, indices, ratio and proportion, arithmetic and geometric series, use of logarithms, graphs. Plane Geometry—theorems regarding chords, tangents, similar polygons, loci, regular polygons and circles.

Plane Trigonometry—Solution of right triangles, use of tables, trigonometrical ratios of more than one angle, solution of oblique triangles, applications.

Composition of forces; general methods involving the use of unicular and force polygons; determination of reactions, centres of gravity; bending moments and moments of resistance. Stresses in cranes, braced towers, roof trusses and bridge trusses.

Algebra—Binomial theorem, permutations and combinations, limits, fractions, vectors, graphs.

Solid Geometry—Points, lines and planes in space; theorems regarding cylinder, cone, sphere and regular polyhedra.

Analytical Geometry—Straight line, circle and simple conics.

Introduction to spherical trigonometry.

Key to Departments

"A" Administrative	"G" Motor Mechanics	"N" Railroad Station Agts.
"B" Mining	"H" Machine Shop	"O" Bookkeeping
"C" Steam	"J" Forging	"P" Dress'm'kg & Mill'y.
"D" Tractor	"K" Woodworking	"R" Art
"E" Electrical	"L" Drafting	"T" English
"F" Automotive Elec.	"M" Chemistry	"U" Mathematics
"FD" Farm Constr'n.		

CORRESPONDENCE COURSES

From Provincial Institute Technology and Art, Calgary.



A corner of the Correspondence Room showing the duplicating equipment used in preparing courses sent out through the mails.

The Provincial Institute of Technology and Art offers courses of instruction to those who are unable to leave home and attend regular day courses. Up to the present six courses have been so organized, three in Steam and three in Mining. The content of these courses is selected to harmonize with the provincial requirements for examination purposes within these departments.

The fees for these courses are nominal.

Third Class Steam	----\$10.00	Fire Boss, Mining	----\$10.00
Second Class Steam	-- 15.00	Pitt Boss, Mining	---- 15.00
Third Class Steam	---- 25.00	Mine Manager, Mining	- 25.00

The arrangement of work and the ground covered by these courses are such as to greatly assist the student who, when working alone, may waste valuable time on a number of non-essential subjects and may overlook much that is essential and vital.

These courses will also be of great help to men engaged in the occupation of Steam Engineering or of Mining who may not at present intend sitting for certificates of competency. Every

workman should have as intimate a knowledge as he can obtain of the operations and appliances of his daily occupation, not merely because of the possibility of advancement and of better pay but because of the added interest in his work.

Additional courses of instruction through the mail may be organized at an early date. The courses under consideration are electricity, mathematics, science, English, commercial subjects, auto mechanics, dressmaking and millinery and home economics. If interested in these courses please communicate with the Institute.

MINING COURSES BY CORRESPONDENCE

FIRST CLASS (18 Months)

(For Mine Manager's Certificate)

The Mines Act: Rules and regulations; special rules; safety precautions; reports; duties; plans.

Gases: Chemistry of mine gasses; shot firing; safety lamps; explosives and blasting; coal dust and its effects; gas testing methods and appliances.

Theory and Practice of Ventilation: Laws of ventilation; motive column; humidity; methods of production and control; calculations.

Practical Work: Prospecting; mine openings; methods of working; general methods; Alberta methods; underground layouts; pumping; hoisting; transportation; underground explosions.

Machinery: Engines; boilers, air compressors; hoists; electric machinery; coal-cutting machinery; haulage motors; pumping machinery; coal hauling machinery.

Surveying and Levelling: Drafting instruments; surveying instruments, methods of surveying; notes: plans; profiles; plotting; areas; calculations; office records.

Geology: Geological terms; geological periods; rocks; stratification; fossils; coal fields of Canada; coal fields and coal horizons of Alberta.

Mining Mathematicss Fractions; decimals; proportion; percentage; mensuration of surfaces and solids; angles; trigonometry; logarithms, powers and roots; mechanics, including gravity, power units, graphical representation of forces, moments, pulleys, gears, friction.

SECOND CLASS (18 Months)

(For Pitt Boss Certificates)

The Mines Acts Rules and regulations; safety precautions, accidents; reports; duties, plans.

Ventilation: Gases; shot-firing; safety lamps; measuring instruments; coal dust and explosives; methods of production and control; chemistry of gases; calculations; Burrell gas detector.

Practical Work: Mine rescue appliances; methods of working; mine timbering; shafts and shaft-linings; haulage and transportation; hoisting; pumping; electricity.

Machinery: Boilers, engines, compressors; coal-handling machinery; coal cutting machinery; pumps; hoists; haulage motors; electrical machinery.

Geology: Geological terms; periods; the earth's crust; coal fields of Alberta; prospecting and drilling; mine openings.

Surveying and Levelling: Surveying instruments; methods; plans; profiles; calculations; survey notes.

Mining Mathematics: Fractions; decimals; proportion; percentage; mensuration of surfaces; logarithms; powers and roots.

THIRD CLASS (6 Months)

For Fire Boss Certificates.

The Mines Act: Rules and regulations; duties of officials; safety precautions; reports.

Practical Work: Geology; timbering; methods of working; explosives; fuses; shot-firing; tracks; ditches; cars; haulage; stables; pumps and pumping; dams; syphons; pumps; timbering; surveying.

Ventilation: Instruments; gases and coal dust; naked and safety lamps; gas testing appliances; production and control of air currents; simple calculations.

Mathematics: Fractions; decimals; proportion; percentage; surfaces and volumes.

SHORT DAY COURSE IN MINING

For students taking a regular correspondence course in Mining additional instruction will be given at the Institute to assist those who are taking the examinations for certificates of competency in mining and also to give a short intensive training in one or more subjects of related work.

This course will extend over a period of three weeks, May 18th to June 5th, inclusive, and is free to all correspondence students in Mining.

STEAM ENGINEERING COURSES BY CORRESPONDENCE

FIRST CLASS (13 Months)

Steam Boilers: Boiler calculations to comply with Canadian interprovincial regulations; boilers and fittings; boiler room auxiliaries; boiler settings; combustion; feed water treatment; boiler tests.

Engines: Modern power plants; air compressors and pumps; valves and valve diagrams; governors and fly-wheels; condensers and condensing systems; indicators and power brakes; lubrication and lubricating system; engine tests.

Refrigeration: Refrigeration systems; operating and testing.

Electrical Engineering: Direct current generators and motors; direct current transmission; direct current switchboards; alternating currents; alternating current machinery.

Mathematics: Mensuration; logarithms and trigonometry; materials of construction; strength of materials; foundations.

Thermodynamics: Theory of heat engines; application to boiler and engine efficiency tests.

Economics: Records; fixed charges; operating charges; principles of rate-making.

SECOND CLASS (13 Months)

Steam Boilers:—Description of boilers and fittings; construction, maintenance and repair; simple boiler calculations; boiler room auxiliaries; boiler settings; combustion; feed water treatment.

Steam Engines: Modern engines and turbines; air compressors; pumping engines and pumps; hoisting engines; valves and valve-setting, governors and fly-wheels; condensers; indicate horse-power calculations; lubrication; foundations; maintenance and repair.

Refrigeration: Description of systems.

Electrical Engineering: Units; D.C. transmission and calculations; D.C. generators and motors; D.C. switchboards; troubles.

Mathematics: Mensuration and logarithms; material of construction and workmanship; belt and pulley calculations; strength of bolts, stays, rods, etc.

THIRD CLASS (12 Months)

Steam Boilers: Description of boilers and fittings; construction, maintenance and repair; boiler settings; elements of combustion; feed, water treatment, pumps.

Steam Engines: Modern engines and turbines; air compressors; materials used by engineers; details of engine parts; action of steam in an engine; simple slide valve and valve gears; flywheel and governor; description of modern engines and turbines; engine room auxiliaries; lubrication; foundations; maintenance and repair.

Refrigeration: Description of ammonia compression system; operation and repair.

Electrical Engineering: Units; D.C. transmission and calculations; D.C. generators and motors; D.C. switchboards; troubles.

EVENING COURSES

Given at Institute of Technology and Art, Calgary.

The evening classes are designed to assist those already engaged in industry by supplementing their practical work by instruction in the technical and theoretical branches of their trade or a closely allied one.

Courses other than those listed will be organized if there is sufficient demand. No courses will be organized in competition with those conducted by the local School Board. Students in the regular day courses may enrol for evening classes with the approval of the Principal on payment of the regular fee.

	<i>No. of Lessons</i>	<i>Unit</i>
Steam Engineering (Lectures) ---	36	C-011
Steam Engineering (Lectures) ---	36	C-022
Electrical Engineering (Lectures) _	36	E-011
Automobile Engineering (Lectures)	36	G-011
Automotive Electricity (Lectures)	36	F-011
Industrial Chemistry -----	36	M-011
Engineering Mathematics -----	36	U-011
Drafting, General -----	40	L-010
Drafting, Electrical -----	40	L-011
Drafting, Steam -----	40	L-012
Drafting, Mechanical -----	40	L-013
Drafting, Sheet Metal -----	40	L-014
Drafting, Architectural -----	40	L-015
Machine Shop -----	40	H-011
Machine Shop -----	40	H-021
Armature Winding -----	40	E-012
Telegraphy -----	40	N-011

C-011

STEAM ENGINEERING

36 Lessons

This course of lectures, based on the Alberta Provincial Examinations for Steam Engineers, includes the elementary study of the general arrangement of steam power plants with a description of the action, construction, operation and maintenance of the following: Boilers; Boiler Room Auxiliaries; Reciprocating Engines; Steam Turbines; Condensers; Air Compressors; Refrigerating Machinery; Power Plant Instruments; Engine Room Auxiliaries.

C-022

STEAM ENGINEERING

36 Lessons

This course of lectures will consist of a more advanced study of the subjects given in the previous year. In addition lectures on the following subjects will be given: The theory of Combustion and its practical application to Alberta Coal. Thermodynamics as applied to boilers, engines and refrigerating machinery.

(Lectures and Demonstrations)

Laws of attraction and repulsion; magnets and magnetic flux. Induction; Laws of electromagnetic induction; primary cells; secondary cells; various types of induction coils. Generation of electric currents. Application of Ohm's laws; circuits; D.C. Generators; series, shunt and compound machines; A.C. motors, transformers.

E-012

ARMATURE WINDING

40 Lessons

Taping, insulation, forming of various types of coils and winding them on D.C. and A.C. machines. Testing for "shorts", "opens", etc.

AUTOMOTIVE ELECTRICITY (Lectures)

F-01136 Lectures

Introduction and history. Electric terms, insulators, resistance and conductors; parallel and series connections; electric lamps. Ohm's Law. Magnetism principles; electro-magnets; induction; static and condensers. Induction coils. Magnets and power factor. Ignition, low and high, timing, generation, armatures, fields, electric motors. Galvanic electricity and dry cells, storage battery (history and principle) storage battery troubles and repairs. Methods of charging batteries, motor generators, rectifiers, etc. Edison cells. Modern battery ignition. Modern magneto ignition. Methods of governing generators. Motor generators and starting motors. The cut-out, wiring, dimmers, horns, etc., Ford system. Typical modern system. Various modern systems.

G-011

LECTURES ON MOTOR MECHANICS

36 Lessons

Classification, according to motive power and design. General construction. Materials used. Consideration of various units, their duty, repair and adjustment under the following heads:

Frame; Springs; Axles; Power Plant. Transmission Systems; Wheels and Tires. Fuel Supply Systems; Carburetion; Lubrication. Cooling and Electric Systems.

H-011MACHINE SHOP (1st Year) 80 Class Hours

Lectures (10 hours) will deal with the following subjects; Metallurgy of iron, steel, aluminum, brass and other metals in common use in the ordinary shops. Use of the micrometer and other measuring instruments. Standard type of threads. Correct methods of grinding tools. Reading of blue prints, figuring gear ratios, set-over for tapers and other information for machine shop work.

PRACTICE IN SHOP WORK 70 Class Hours

The use of hammer and chisel, file and scraper, surface plate and square.

Drilling.—Drill sharpening; marking out and boring holes; attention to the proper speed and feed of drills.

Lathe Work.—Centering, straight turning between centres; turning tapers; thread cutting (various kinds of threads); face plate and chuck work; polishing metal, etc.

The use of taps, dies, reamers, etc.

Shaper Work.—Making plane surfaces; squaring blocks; shaping key-ways, etc.

H-021 MACHINE SHOP (2nd Year) 80 Class Hours

This course will be along the line of the first year, with more advanced work on lathe, shaper and milling machines. Practice in assembling. Forging, making, hardening and tempering of tools suitable for the shop.

Lectures will be given covering the operation of different tools, machines, shop kinks, etc.

L-010 GENERAL DRAFTING 80 Class Hours

A general course covering elementary drawing necessary for L-011, L-012, L-013, L-014. The work includes geometric drawing, projection drawing, development of simple surfaces, isometric drawing and the drawing of machine parts or details relating to building construction; tracing.

L-011 DRAFTING FOR ELECTRICIANS 80 Class Hours

Intersection of solids and development of intersecting surfaces, bolts, screws and rivets. Freehand sketching, drawing and tracing of wiring diagrams.

MECHANICAL DRAFTING (Steam Engineers)

L-012 80 Class Hours

Details of boilers and engine parts, bolts and rivets, standard valves and pipe fittings, dimension sketching.

MECHANICAL DRAFTING (Motor Mechanics)

L-013 80 Class Hours

Shop sketching, working drawings from machine parts, bolts and screws. Wiring diagrams for gas engines and automobiles.

DRAFTING FOR SHEET METAL WORKERS

L-014 80 Class Hours

Shop sketching, geometric drawing, intersection of solids and the development of intersecting surfaces. Sheet metal drafting, including problems in triangulation.

L-015ARCHITECTURAL DRAFTING 80 Class Hours

Freehand drawing and lettering. Drawing of symbols and conventions used on plans. Plans and elevations for a small building.

NOTE.—The above course will be followed by more advanced work L-020, L-021, L-022, L-023, L-024, L-025, corresponding to the work as outlined in day courses L-10, L-21, L-22, L-23, L-14, L-15 respectively.

INDUSTRIAL CHEMISTRY COURSE
(Three Years)

(Combined Lecture and Laboratory Course)

If sufficient demand, details on application.

N-011

TELEGRAPHY

40 Lessons

Good, legible penmanship is a pre-requisite for this course.

This course embraces:

Correct sending and receiving of commercial and railway matter; handling of train orders; railway service messages. Special stress is placed on the correct handling of train orders and telegrams.

Telegraph rules and rates; railroad station work as would be required for an operator. Some time is devoted to typewriting.

The nature of this work precludes specifying the exact time allotted to each of the foregoing subjects but the work is taken up in proper sequence.

(This course requires two years' work in the evenings.)

U-011

ENGINEERING MATHEMATICS

36 Lessons

Algebra.—Up to and including the theory of Quadratics; use of the discriminant; the connection between an equation and its graph.

Analytical Geometry.—Cartesian and Polar Coordinates. Equations of a straight line, circle and simple conics. Transformation of axes.

Plane Trigonometry.—Circular functions and their graphs. Radius measurement. Functions of compound angles. Derivation of formulæ and solution of plane triangles.

Spherical Trigonometry up to solution of spherical triangles.

Apply at the Provincial Institute for further information.

OFFICERS OF THE STUDENTS' ASSOCIATION

1924-25

FIRST TERM

<i>President</i>	- - - - -	F. PATTERSON
<i>Secretary</i>	- - - - -	ESME JACKSON
<i>Treasurer</i>	- - - - -	F. J. MOIR

SECOND TERM

<i>President</i>	- - - - -	FRANK STEVENS
<i>Secretary</i>	- - - - -	ROY FOUNTAINE
<i>Treasurer</i>	- - - - -	CHARLES HOWE

EXTRACTS FROM CONSTITUTION OF STUDENTS' ASSOCIATION :

"The aims and objects of the Association shall be: 'The fostering and encouragement of co-operative effort to the end that the welfare of its members may be promoted along the following lines :

"(1) Literary ;

"(2) Athletic ;

"(3) Social.

"All students of this Institution fully enrolled in any regular course for the current year shall be members of this Association, provided that students enrolled in evening courses may become associate members upon payment of fee as hereinafter provided.

"The membership fee shall be \$2.00 for all students enrolled in regular courses and \$1.00 for part-time students or students enrolled in special courses.

"The fee for associate membership shall be \$1.00. All fees shall be payable at time of enrolment.' "

ENROLMENT, 1924-25

<i>Course</i>	<i>Day</i>	<i>Evening</i>	<i>Corres- pondence</i>	<i>Total</i>
Armature Winding -----	—	14	—	14
Automotive Electricity -----	21	44	—	65
Drafting -----	10	16	—	26
Dressmaking and Millinery -----	35	—	—	35
Electrical Engineering -----	95	38	—	133
Farm Mechanics and Construction -----	15	—	—	15
Machine Shop -----	—	39	—	39
Mining -----	1	—	68	69
Motor Mechanics -----	60	33	—	113
Steam Engineering -----	32	—	170	202
Telegraphy -----	15	14	—	29
Tractor Engineering -----	89	—	—	89
	393	198	238	829

